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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,791	06/26/2003	Warren B. Jackson	200207604-1	6884

7590 09/27/2004  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER
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WARREN, MATTHEW E

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/608,791

Applicant(s)

JACKSON ET AL.

Examiner

Matthew E Warren

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Drawings***

Figures 1-2B and 8A-8B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

Claim 31 is objected to because of the following informalities: the limitation of "the two-dimensional array" lacks antecedent basis in the claim. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Stasiak (US Pub. 2003/0230746 A1).

In re claim 1, Stasiak shows (figs. 1a-1b) an organic polymer based memory element comprising two overlapping conductive signal lines (140 and 130) and at least one organic polymer layer (120) within the region of overlap between the two signal lines, the organic polymer layer having at least two detectable memory states [0019], transitions between which arise from one of changes in chemical bonds and changes in organic polymer doping [0023].

Claims 1-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Krieger et al. (US Pub. 2004/0159835 A1).

In re claim 1, Krieger et al. shows (figs. 1-3b, 5, and 11) an organic polymer based memory element comprising two overlapping conductive signal lines (upper electrode and lower electrode) and at least one organic polymer layer (active layer 108) within the region of overlap between the two signal lines, the organic polymer layer having at least two detectable memory states [0029-0030], transitions between which arise from one of changes in chemical bonds and changes in organic polymer doping [0039-0040 and 0050].

In re claim 2, Krieger discloses [0057] that in the first memory state, the organic polymer exhibits a first electrical resistivity, in the second memory state, the organic

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polymer exhibits a second electrical resistivity lower than the first, and the element is inherently an antifuse type memory element.

In re claim 3, Krieger discloses [0057] that the memory-state transition is initiated by applying to the memory element state-transition facilitating agents such as electrical voltage.

In re claims 4-13, Krieger shows [fig. 1 and 2] that the organic polymer layer is adjacent an additional layer (passive layer 106). The organic polymer layer and additional layer inherently have all of the memory-state transition properties of the claims because the structure and materials are the same as those of the claimed invention.

In re claim 14, Krieger discloses [0030-0031] that in the first memory state, the organic polymer exhibits a first electrical resistivity, in the second memory state, the organic polymer exhibits a second electrical resistivity higher than the first, and the element is inherently an fuse type memory element.

In re claim 15, Krieger discloses [0030-0031] that the memory-state transition is initiated by applying to the memory element state-transition facilitating agents such as electrical voltage.

In re claims 16-25, Krieger shows [fig. 1 and 2] that the organic polymer layer is adjacent an additional layer (passive layer 106). The organic polymer layer and additional layer inherently have all of the memory-state transition properties of the claims because the structure and materials are the same as those of the claimed invention.

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In re claims 26 and 27, Krieger discloses [0071] that upon application of a switch, the memory element irreversibly transitions from the first memory state to the second memory state [0030-0031, or reversibly transitions from the first memory state to a second memory state and back to the first memory state with a second switch [0057] since a switching means is inherently used to turn the voltage on or off.

In re claims 28-32, Krieger shows (fig. 11) [0072-0073] that the memory elements form a two-dimensional array or a three dimensional array for switching between memory states to store data values. The memory cell is used in a computer system having a processor.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Branz et al. (US Pub. 004/0012035 A1), Brown et al. (US 6,528,815 B1), Cheung et al. (US Pub. 2004/0108501 A1), and Perlov et al. (EP 1367596 A1) also show memory arrays having organic polymers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW

*Mew*

September 22, 2004

*Tom Thomas*

TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
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